

CLAIMS

1. A probe carrier on which probes capable of specifically binding to a target substance are
5 immobilized as a plurality of spots in known locations on the carrier, characterized in that the probe carrier has two or more separated areas, wherein in each area probes of the same kind are immobilized as one or more spots and probes of
10 different kinds are not immobilized and in at least one area probes of the same kind are immobilized as two or more spots.

2. The probe carrier according to claim 1, wherein the probe carrier is configured to allow
15 quantification of two or more kinds of target substances.

3. The probe carrier according to claim 2, characterized in that the amount of probes in the plurality of areas varies respectively depending on a
20 target substance to be detected.

4. The probe carrier according to claim 2, wherein the plurality of areas are aligned in a first direction and adjacent areas are separated in a direction vertical to the first direction.

25 5. The probe carrier according to claim 1, characterized in that the number of the immobilized probe molecules per spot is practically equal among

all kinds of probes.

6. The probe carrier according to claim 1,
wherein the probe is a nucleic acid.

7. The probe carrier according to claim 6,
5 characterized in that the number of the immobilized
probe molecules per spot is of the same order to the
lowest number of mRNA molecules of a target gene
present in a sample.

8. The probe carrier according to claim 7,
10 characterized in that the number of spots in each of
the areas is proportional to an average amount of
expression, in human, of the target gene having a
sequence complimentary to the probe.

9. The probe carrier according to claim 1,
15 characterized in that the amount of probes
immobilized varies between different areas.

10. The probe carrier according to claim 1,
characterized in that application of probes to be
immobilized is performed by an ink jet method.

20 11. The probe carrier according to claim 2,
characterized in that the number of spots in each of
the area differ 100 to 1000 times between the maximum
and the minimum.

12. The probe carrier according to claim 2,
25 wherein the two or more areas have an same area.

13. The probe carrier according to claim 1,
characterized in that the carrier is a tape.

14. The probe carrier according to claim 1, characterized in that the carrier is a plate substrate.

15. A method of evaluating a content of a target substance in a solution using a probe carrier on which probes capable of specifically binding to the target substance are immobilized in predetermined locations on the carrier, the method comprising the steps of:

10 preparing a probe carrier having two or more areas separated each other on the carrier, wherein in each area probes of the same kind are immobilized as one or more spots and probes of different kinds are not immobilized and in at least one area probes of the same kind are immobilized as two or more spots;

15 contacting the carrier with the solution to bind the target substance to the probes; and

 measuring the intensity of signal related to the target substance bound to the probes.

20 16. The evaluation method according to claim 15, wherein the content of the target substance in the solution is evaluated by adding up the signal intensity in the areas.

 17. The evaluation method according to claim 15, wherein the addition of the signal intensity is performed with a line sensor or an area sensor.

 18. The quantification method according to

claim 15, wherein the amount of probes immobilized on the probe carrier is made different respectively, depending on the kind of the probe.

19. The evaluation method according to claim 15,
5 wherein two or more kinds of target substances in the solution are evaluated.

20. The evaluation method according to claim 15, wherein the amount of probes immobilized on the probe carrier is fixed, respectively, at 1.0 to 2.0 times
10 as much as the amount expected for the target substance in the solution.

21. The evaluation method according to claim 15, characterized in that the probe carrier is a tape, wherein the step of contacting comprises the step of
15 contacting part of the probe carrier with the solution and the step of sequentially changing the contact part with the solution by relatively moving the carrier.